

MISCELLANEOUS PHENOMENA.

SUNSETS.

The characteristics of the sky as indicative of fair or foul weather for the succeeding twenty-four hours have been observed at all Signal Service stations. Reports from one hundred and fifty-eight stations show 4,721 observations to have been made, of which four were reported doubtful; of the remainder, 4,717, there were 3,982, or 84.4 per cent., followed by the expected weather.

SUN SPOTS.

North Lewisburg, Ohio, 30th.—Sun spots were observed on all clear days during the month.

Capt. T. E. Blagden, of the bark, "Gloire," reported: "on April 26th, in latitude N. 46° 45', W. 32° 00' observed a large spot on the sun's disc, with several smaller spots near it."

Professor David P. Todd, director of the Lawrence Observatory, Amherst, Massachusetts, furnishes the following record of sun spots for April, 1884:

Date— April, 1884.	No. of new		Disappeared by solar rotation.		Reappeared by solar rotation.		Total No. visible.		Remarks.
	Gr'ps	Spots	Gr'ps	Spots	Gr'ps	Spots	Gr'ps	Spots	
1, 12 m.....	1	20†	0	0	1	5	5	40†	
7, 10 a. m.....							6	45†	
8, 10 a. m.....	2	12†	1	2	1	1	7	55†	
11, 10 a. m.....							4	55†	
12, 10 a. m.....	0	0	0	0	0	0	4	55†	
14, 11 a. m.....	1	3	1	10†	1	3	4	45†	
20, 4 p. m.....							9	55†	
21, 1 p. m.....	0	5†	0	5†	0	5†	9	55†	
22, 10 a. m.....	0	20†	1	5†	0	5†	8	70†	Many of the spots small. One of the spots very large.
23, 3 p. m.....	1	20†	0	0	0	0	8	90†	
24, 9 a. m.....	0	25†	1	5†	0	0	7	110†	
26, 4 p. m.....	1	10†	3	15†	1	10†	5	105†	
27, 10 a. m.....	0	5†	0	0	0	5†	5	100†	
28, 7 a. m.....	0	5†	0	0	0	0	4	95†	
29, 5 p. m.....	0	0	0	0	0	0	4	95†	
30, 10 a. m.....	0	5†	0	10†	0	0	4	90†	

Faculae were seen at the time of every observation. †Approximated.

EARTHQUAKES.

Eureka, Humboldt county, California, 12th: numerous slight shocks of earthquake were felt here during the past week. They occurred on the mornings of the 6th, 8th, and 11th.

Carson City, Nevada: a sharp shock of earthquake occurred at 2.10 p. m. of the 11th; duration three seconds; vibration from northwest to southeast. The shock was also felt at Virginia City, about fifteen miles distant.

Hydesville, Humboldt county, California: a slight shock of earthquake occurred at 6.20 a. m. of the 6th, lasting about twenty seconds; it was a mere tremor; the direction was not determined.

Oakland, California: a slight shock of earthquake, accompanied by a slow rumbling noise, occurred at 9.10 p. m. of the 17th; the vibration was from northwest to southeast. Another slight shock was felt at 11.30 a. m. of the 20th; it was scarcely noticeable.

London, England: at 9.30 a. m. of the 22d an earthquake shock of considerable force was felt in the eastern counties of England. The disturbance was most severe in Essex and Suffolk counties. At Ipswich, Suffolk county, the shock was so severe that the walls of the houses were perceptibly shaken. The shock was still more violent at Colchester in Essex county, where the tall chimney-stacks of factories and other high structures were wrecked. The damage caused by the earthquake at Colchester is estimated at £10,000. The shock was also severe at Chelmsford, about thirty miles from London. The wave passed from south to north.

Ogreeta, Cherokee county, North Carolina: at 6.46 a. m. of the 30th a low rumbling sound of earthquake, like rolling thunder, was heard; noise apparently from a point nearly due north of here.

PRAIRIE AND FOREST FIRES.

Raleigh, North Carolina: for several days preceding the 4th, very destructive forest fires prevailed in the southern part of this state, the fires extending into six or seven counties,

and destroying some of the largest turpentine orchards in the state. At Manley, on the Raleigh and Augusta railway, a number of houses and much lumber were burned.

Grand Rapids, Michigan.—A large amount of property consisting of fences, railroad ties, etc., was destroyed by forest fires on the 27th.

Prairie and forest fires were also reported from the following places:

Fort Smith, Arkansas, 1st, 10th.
Bismarck, Dakota, 16th, 22d, 25th.
Fort Buford, Dakota, 20th to 24th.
Fort Meade, Dakota, 22d, 23d.
Yankton, Dakota, 3d, 9th, 10th, 17th, 18th, 22d, 23d, 24th, 29th.

Humboldt, Iowa, 4th.

Dodge City, Kansas, 5th, 6th.

Independence, Kansas, every day in the month except 11th, 20th, 21st, 30th.

De Soto, Nebraska, 24th.

North Platte, Nebraska, 16th to 21st, 30th.

Chambersburg, Pennsylvania, 29th, 30th.

State College, Pennsylvania, 29th.

Troy, Pennsylvania, 29th, 30th.

Wilkesbarre, Pennsylvania, 28th, 29th, 30th.

Humphrey, New York, 27th.

New River Inlet, North Carolina, 2d.

Fort Elliott, Texas, 15th.

METEORS.

Block Island, Rhode Island: at 11.50 p. m. of the 26th, a meteor was observed moving eastward from the zenith, and exploded into two pieces, when 45° from the horizon; it left a train of reddish light which remained visible for ten seconds.

Meteors were also seen at the following places:

1st.—Clarksville, Texas.

3d.—Salina, Kansas.

7th.—Pittsburg, Pennsylvania.

11th.—Variety Mills, Virginia.

12th, 13th, 14th.—Somerset, Massachusetts.

18th, 19th.—Woodstock, Maryland.

19th.—Webster, Dakota.

25th.—Lead Hill, Arkansas; Red Willow, Nebraska.

27th.—Wytheville, Virginia.

MIGRATION OF BIRDS.

Geese flying northward.—Fort Canby, Washington Territory, 30th; Hydesville, California, 9th; Princeton, California, 17th, 18th, 23d, 24th; Portland, Maine, 12th; Grand Haven, Michigan, 25th; Moorhead, Minnesota, 7th, 11th, 13th; Saint Vincent, Minnesota, 9th; Albany, Oregon, 20th; Astoria, Oregon, 23d, 30th; Point Judith, Rhode Island, 1st, 3d to 8th, 10th, 11th; Chincoteague, Virginia, 2d; Manistique, Michigan, 21st.

Ducks flying northward.—Saint Vincent, Minnesota, 9th.

Cranes flying northward.—Indianola, Iowa, 14th; Edgington, Illinois, 5th.

Pigeons flying northward.—New Haven, Connecticut, 5th.

POLAR BANDS.

Los Angeles, California, 8th.

Archer, Florida, 1st, 12th, 13th.

Riley, Illinois, 28th, 30th.

Escanaba, Michigan, 5th.

Moorestown, New Jersey, 18th.

Vineland, New Jersey, 30th.

Mountainville, New York, 22d, 30th.

Wauseon, Ohio, 2d, 18th.

Charleston, South Carolina, 13th.

Nashville, Tennessee, 6th, 7th, 12th, 26th, 27th.

El Paso, Texas, 17th.

Norfolk, Virginia, 10th.

WATER SPOUTS.

A special despatch to the "Saint Louis Globe-Democrat" from Corpus Christi, Texas, on the 8th, stated: that a part of

the crew of the schooner "Juniata Julia" arrived at that place on the above date and reported that during the night of April 4th the schooner was capsized by a water sport during her voyage from Tuxpan, Mexico, to Galveston, Texas.

Fort Macon, North Carolina: a water spout moving north-eastward was observed near Bogue inlet on the 15th.

New River Inlet, North Carolina: at 9.20 a. m. of the 15th a small water-spout was observed about one mile southeast of this station. The base of the column was about ten feet in diameter, and its height about twenty feet, the color being a dark grey. It moved in a southeasterly direction, and was accompanied by a roaring noise.

ZODIACAL LIGHT.

Archer, Florida, 17th, 22d.

Key West, Florida, 26th.

Pensacola, Florida, 12th, 16th.

Portland, Maine, 23d.

Harvard College Observatory, Massachusetts, 12th, 13th, 14th, 22d, 23d, 26th, 27th.

Escauaba, Michigan, 2d, 4th, 5th, 6th, 23d.

Nashville, Tennessee, 15th, 16th, 25th, 26th.

Variety Mills, Virginia, 15th, 16th, 17th.

DROUGHT.

Corpus Christi, Nueces county, Texas, 24th: stockmen report that large numbers of cattle are dying on account of scarcity of water and poor pasturage caused by drought.

SAND STORMS.

Arizona.—Yuma, 10th, 24th, 26th.

New Mexico.—Fort Union, 1st.

NOTES AND EXTRACTS.

REPORT OF THE MISSOURI WEATHER SERVICE, APRIL, 1884.

The temperature during April has been 53°.0 at Central Station, which is three degrees below the normal. The mean April temperature has fallen to or below 53°.0 twelve times during the last forty-seven years, and has fallen as low as 44°.2, in the year 1857. The lowest observed means in the state during the past April were 48°.6 at Lexington, and 49°.3 at Oregon. The highest means were 56°.4, at Springfield, and 56°.2, at Cairo.

The temperature of the air fell to 32° for the last time on the 8th, at Saint Louis, that being the coldest temperature of the month. Over a region lying south and east of a line running through Saint Louis, Chamois, and thence southward near Iron Mountain, the temperature did not fall below 32°. The highest minimum was 37° at Cairo. The lowest minimum of 21° at Centerville, is probably an error, or may be due local causes. Other minima are 24° at Oregon; 27° at Lexington; and 28° at Keokuk and Hannibal. The maximum temperatures reported were, 87° at Glasgow, and 84° at Centerville, Chamois, Boonville, and Miami.

The rainfall at the Central Station was 3.92 inches, which is about normal. In the state the rainfall has been greatest, or over four inches, in the southwestern part. The maximum of 6.50 inches occurred at Greenfield. The least fall, slightly exceeding one inch, occurred in the northeastern part of the state.

A small tornado occurred at Lamar, but the date is not given. A small whirlwind occurred about six miles southwest of Greenfield on the 18th, causing one death.

Miami reports a peculiar electrical phenomena in the east at 23 hours on the 15th. It had a comet-like appearance, the tail or streamer turning first towards the north then towards the south.

On the 9th, a heavy snowfall occurred in central Missouri, the flakes measuring three to four inches in diameter at Miami and at Glasgow, they were two inches wide and three inches long.

The spring has, on the whole, been a very favorable one although a little late.

Correction.—In second line from top, in March report, for four read fourteen.

FRANCIS E. NIPHER,
Director.

WEATHER REPORT FOR APRIL, 1884.

Prepared by Prof. F. H. Snow, of University of Kansas, from observations taken at Lawrence.

The chief meteorological features of this month were the low temperature (the lowest April mean since 1875), the excessive cloudiness, and the abundant rainfall, which surpassed that of any previous April upon our seventeen years' record. The prolonged snow storm of the 21st was a very exceptional occurrence at so late a date. There were no injurious frosts.

Mean temperature.—50°.42, which is 3°.80 below the April average. The highest temperature was 76°.5 on the 17th, this being the lowest April maximum in our record; the lowest temperature was 28°.5 on the 8th, giving a

monthly range of 48°. Mean temperature at 7 a. m., 45°.77; at 2 p. m., 58°.37; at 9 p. m., 48°.77.

Rainfall.—5.62 inches, which is 2.63 inches above the April average of the sixteen preceding years. Rain fell on thirteen days. There were four thunder showers. A very moist snow fell all day on the 21st, melting nearly as fast as it fell. It is estimated that the entire depth of the snow was at least six inches. The entire rainfall for the four months of 1884 now completed has been 10.76 inches, which is 3.06 inches above the average for the same months in the preceding sixteen years.

Mean cloudiness.—55.76 per cent. of the sky, the month being 7.41 per cent. cloudier than usual. Number of clear days (less than one-third cloudy), 6; half clear (from one to two thirds cloudy), 15; cloudy (more than two-thirds), 9. There were two entirely clear days and five entirely cloudy. Mean cloudiness at 7 a. m., 57.60 per cent.; at 2 p. m., 70 per cent.; at 9 p. m., 39.67 per cent.

Wind.—NW., twenty-three times; se., twenty times; sw., nineteen times; ne., fourteen times; n., seven times; s., three times; e., three times; w., once. The total run of the wind was 13,954 miles, which is 118 miles below the April average. This gives a mean daily velocity of 465.13 miles and a mean hourly velocity of 19.38 miles. The highest velocity was 60 miles an hour, on the 9th, from 5 to 6 p. m.

Barometer.—Mean for the month, 29.001 inches; at 7 a. m., 29.002 inches; at 2 p. m., 28.979 inches; at 9 p. m., 29.021 inches; maximum, 29.321 inches on the 3d; minimum, 28.495 inches on the 26th; monthly range, 0.826 inch.

Relative humidity.—Mean for the month, 65.9 per cent.; at 7 a. m., 75.5; at 2 p. m., 49.6; at 9 p. m., 72.7; greatest, 100, on the 13th, 19th, and 21st; least, 19, on the 5th. There was one fog.

The following table furnishes a comparison with the seventeen previous Aprils:

April.	Mean temperature.	Maximum temperature.	Minimum temperature.	Rain (inches).	Snow (inches).	Rainy days.	Thunder-storms.	Mean cloudiness.	Humidity.	Number of fogs.	Miles of wind.	Mean barometer.	Maximum barometer.	Minimum barometer.
1868.....	49.05	83.0	25.0	2.95	0.00	10	3	52.00	.....	1	.....	.....	.....	.....
1869.....	51.44	87.0	18.0	2.43	1.00	10	2	51.00	72.1	0	.....	29.000	29.407	28.388
1870.....	56.84	91.0	19.0	1.08	0.00	8	1	49.33	54.7	1	.....	29.081	29.359	28.700
1871.....	57.99	92.0	30.5	2.38	0.00	8	3	47.11	53.5	0	.....	28.891	29.331	28.299
1872.....	50.42	85.0	30.0	4.74	0.00	12	7	55.12	59.5	1	.....	28.999	29.443	28.401
1873.....	48.85	88.0	20.0	4.42	2.00	9	2	55.89	63.4	0	.....	18.371	28.957	29.349
1874.....	48.77	81.0	22.5	2.86	0.00	8	2	51.11	57.7	0	.....	14.784	29.100	29.422
1875.....	49.79	82.0	23.0	2.54	0.00	10	2	48.22	57.6	0	.....	14.144	29.075	29.395
1876.....	55.00	87.5	30.0	3.38	0.00	7	5	44.78	59.6	0	.....	14.442	29.035	29.418
1877.....	53.00	81.0	25.0	3.13	0.00	11	4	53.00	64.9	1	.....	11.976	28.995	29.537
1878.....	58.60	82.0	30.0	5.48	0.00	7	5	38.22	66.0	1	.....	11.482	28.851	29.242
1879.....	56.40	84.0	20.0	4.18	0.00	10	0	49.67	61.0	0	.....	11.231	29.062	29.467
1880.....	56.92	93.0	31.0	1.75	0.00	6	4	34.50	53.4	0	.....	16.709	29.029	29.550
1881.....	52.47	84.0	13.0	1.27	0.00	9	4	51.78	67.6	0	.....	14.495	29.084	29.501
1882.....	56.83	88.0	35.0	3.20	0.00	9	5	51.77	61.7	0	.....	14.220	29.032	29.449
1883.....	57.18	89.5	35.0	3.12	0.00	8	2	40.11	53.3	2	.....	12.936	28.957	29.473
1884.....	50.42	76.5	28.5	5.62	0.00	13	4	55.76	65.9	1	.....	13.954	29.002	29.321
Mean.....	54.00	85.6	26.4	3.14	0.50	9	4	48.79	60.5	0.5	14,063	29.010	29.416	28.498

The following extract has been taken from the report of the "Alabama Weather Service," for the month of April, 1884, under the direction of Professor P. H. Mell, Jr., Director:

AGRICULTURAL AND MECHANICAL COLLEGE,

Auburn, Alabama, May 1, 1884.

The month of April opened with two weeks of cool, dry weather, the atmosphere being generally hazy, and the wind northwest. The average rainfall reported from eleven stations up to the 14th, was only .38 of an inch, other stations reporting none. On the 9th and 10th, during the prevalence of this drought, heavy frosts in the northern part of the state were reported as doing much damage to the fruit crop. Slight frosts occurred at the same time in middle and southern Alabama. Crops and gardens throughout the state were considerably retarded during this period.

From 14th to the 21st, the precipitation was greater. Heavy rainfalls, attended by violent winds and grand displays of electricity, were quite general, and are described as disastrous in several places.

From the 22d to the 25th, a cold wave passed over the state. The 24th was the coldest day during this period, the average temperature being 47°.6. The lowest temperature for this day is reported from Selma, 31°. Slight frosts were noticed on the 24th to the 30th, some light showers were reported but the month was generally dry, atmosphere hazy, temperature warmer, winds variable. Encouraging reports come from all sections that crops are growing rapidly, and farmers seem cheerful.

SUMMARY.

Mean temperature, 63°.

Highest temperature, 94° at Calera, on the 29th.

Lowest temperature, 28° at Calera, on the 10th.

Range of temperature, 66°.

Mean depth of rainfall, 4.16 inches.

Mean daily rainfall, .14 inch.

Greatest depth of monthly rainfall, 7.37 inches at Scottsborough.